AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1- 9. (cancelled).

10. (currently amended): A rotation angle detection device comprising:

a stator provided with a one-phase excitation winding and two-phase output windings; and

a rotor having salient poles,

wherein the two-phase output windings are wound around a plurality of teeth of the stator, and

respective numbers of turns of the two-phase output windings are obtained by using m-phase windings, where m is an integer of 3 or more, the m-phase windings being defined in advance to convert the numbers of turns of the m-phase windings into those of two-phase windings,

wherein, when the number of teeth of the stator is an odd number, a winding pattern of the excitation winding is a pattern repeated by a number which is the same as a value of a divisor of the number of teeth.

11. (currently amended): A rotation angle detection device ~~according to claim 10~~as in any one of claims 10, 14, 15, 16, 17 and 18,

wherein, when the numbers of turns of the m-phase windings, where m is an integer of 3 or more, are converted into two-phase windings, the conversion is performed according to the following expression:

$$N_{\alpha i} = k\sum_{n=1}^{m} N_{ni}\cos\left(\gamma + \frac{2(n-1)}{m}\pi\right)$$

$$N_{\beta i} = k\sum_{n=1}^{m} N_{ni}\sin\left(\gamma + \frac{2(n-1)}{m}\pi\right)$$

where γ represents an arbitrary constant, k represents an arbitrary constant excluding zero, a subscript i represents a number of a tooth, α and β represent two-phase windings after conversion, and n represents nth phase before conversion, $N_{\alpha i}$ and $N_{\beta i}$ represent the number of turns of the α-phase and β-phase windings in an ith tooth, respectively, and N_{ni} represents the number of turns of nth phase winding of the ith tooth.

Claims 12 and 13 (canceled).

14. (currently amended): ~~A rotation angle detection device according to claim 12,~~A rotation angle detection device comprising:

a stator provided with a one-phase excitation winding and two-phase output windings; and

a rotor having salient poles,

wherein the two-phase output windings are wound around a plurality of teeth of the stator,

respective numbers of turns of the two-phase output windings are obtained by using m-phase windings, where m is an integer of 3 or more, the m-phase windings being defined in advance to convert the numbers of turns of the m-phase windings into those of two-phase windings,

wherein the number of teeth of the stator is 3n, where n is a natural number, and

wherein the number of teeth of the stator is nine, and a shaft multiple angle is 4 or 8.

15. (currently amended): A rotation angle detection device according to claim ~~13~~ 10, wherein the number of teeth of the stator is nine, and a shaft multiple angle is 4 or 8.

16. (currently amended): ~~A rotation angle detection device according to claim 12,~~A rotation angle detection device comprising:

a stator provided with a one-phase excitation winding and two-phase output windings; and

a rotor having salient poles,

wherein the two-phase output windings are wound around a plurality of teeth of the stator,

respective numbers of turns of the two-phase output windings are obtained by using m-phase windings, where m is an integer of 3 or more, the m-phase windings being defined in advance to convert the numbers of turns of the m-phase windings into those of two-phase windings,

wherein the number of teeth of the stator is 3n, where n is a natural number, and

wherein the number of teeth of the stator is twelve, and a shaft multiple angle is 4 or 8.

17. (currently amended): ~~A rotation angle detection device according to claim 10,~~A rotation angle detection device comprising:

a stator provided with a one-phase excitation winding and two-phase output windings; and

a rotor having salient poles,

wherein the two-phase output windings are wound around a plurality of teeth of the stator,

respective numbers of turns of the two-phase output windings are obtained by using m-phase windings, where m is an integer of 3 or more, the m-phase windings being defined in advance to convert the numbers of turns of the m-phase windings into those of two-phase windings, and

wherein the numbers of turns of the two-phase output windings are adjusted such that the two-phase output windings do not pick up a magnetic flux of a spatial order which is the same as a spatial order of a change in permeance of the rotor or a magnetic flux of a spatial 0^{th} order.

18. (currently amended): ~~A rotation angle detection device according to claim 10,~~A rotation angle detection device comprising:

a stator provided with a one-phase excitation winding and two-phase output windings; and

a rotor having salient poles,

wherein the two-phase output windings are wound around a plurality of teeth of the stator,

respective numbers of turns of the two-phase output windings are obtained by using m-phase windings, where m is an integer of 3 or more, the m-phase windings being defined in advance to convert the numbers of turns of the m-phase windings into those of two-phase windings, and

wherein the numbers of turns of the two-phase output windings are adjusted such that the two-phase output windings do not pick up a specific component of a gap magnetic flux which is generated when a rotation shaft of the rotor and a center of the stator deviate from each other.

19. (currently amended): A dynamo-electric machine comprising:

a rotation angle detection device having a stator provided with a one-phase excitation winding and two-phase output windings and a rotor having salient poles,

wherein the two-phase output windings are wound around a plurality of teeth of the stator, ~~and~~

respective numbers of turns of the two-phase output windings are obtained by using m-phase windings, where m is an integer of 3 or more, the m-phase windings being defined in

advance to convert the numbers of turns of the m-phase windings into those of two-phase windings, and

wherein, when the number of teeth of the stator is an odd number, a winding pattern of the excitation winding is a pattern repeated by a number which is the same as a value of a divisor of the number of teeth.

20. (new) A dynamo-electric machine comprising:

a rotation angle detection device having a stator provided with a one-phase excitation winding and two-phase output windings and a rotor having salient poles,

wherein the two-phase output windings are wound around a plurality of teeth of the stator,

respective numbers of turns of the two-phase output windings are obtained by using m-phase windings, where m is an integer of 3 or more, the m-phase windings being defined in advance to convert the numbers of turns of the m-phase windings into those of two-phase windings,

wherein the number of teeth of the stator is 3n, where n is a natural number, and

wherein the number of teeth of the stator is nine, and a shaft multiple angle is 4 or 8.

21. (new) A dynamo-electric machine comprising:

a rotation angle detection device having a stator provided with a one-phase excitation winding and two-phase output windings and a rotor having salient poles,

wherein the two-phase output windings are wound around a plurality of teeth of the stator,

respective numbers of turns of the two-phase output windings are obtained by using m-phase windings, where m is an integer of 3 or more, the m-phase windings being defined in advance to convert the numbers of turns of the m-phase windings into those of two-phase windings,

wherein the number of teeth of the stator is 3n, where n is a natural number, and

wherein the number of teeth of the stator is twelve, and a shaft multiple angle is 4 or 8.

22. (new) A dynamo-electric machine comprising:

a rotation angle detection device having a stator provided with a one-phase excitation winding and two-phase output windings and a rotor having salient poles,

wherein the two-phase output windings are wound around a plurality of teeth of the stator,

respective numbers of turns of the two-phase output windings are obtained by using m-phase windings, where m is an integer of 3 or more, the m-phase windings being defined in advance to convert the numbers of turns of the m-phase windings into those of two-phase windings, and

wherein the numbers of turns of the two-phase output windings are adjusted such that the two-phase output windings do not pick up a magnetic flux of a spatial order which is the same as a spatial order of a change in permeance of the rotor or a magnetic flux of a spatial 0^{th} order.

23. (new) A dynamo-electric machine comprising:

a rotation angle detection device having a stator provided with a one-phase excitation winding and two-phase output windings and a rotor having salient poles,

wherein the two-phase output windings are wound around a plurality of teeth of the stator,

respective numbers of turns of the two-phase output windings are obtained by using m-phase windings, where m is an integer of 3 or more, the m-phase windings being defined in advance to convert the numbers of turns of the m-phase windings into those of two-phase windings, and

wherein the numbers of turns of the two-phase output windings are adjusted such that the two-phase output windings do not pick up a specific component of a gap magnetic flux which is generated when a rotation shaft of the rotor and a center of the stator deviate from each other.

24. (new) The dynamo-electric machine according to claim 19,

wherein the number of teeth of the stator is nine, and a shaft multiple angle is 4 or 8.

25. (new) A dynamo-electric machine as in any one of claims 19-24,

wherein, when the numbers of turns of the m-phase windings, where m is an integer of 3 or more, are converted into two-phase windings, the conversion is performed according to the following expression:

$$N_{\alpha i} = k\sum_{n=1}^{m} N_{ni}\cos(\gamma + \frac{2(n-1)}{m}\pi)$$
$$N_{\beta i} = k\sum_{n=1}^{m} N_{ni}\sin(\gamma + \frac{2(n-1)}{m}\pi)$$

where γ represents an arbitrary constant, k represents an arbitrary constant excluding zero, a subscript i represents a number of a tooth, α and β represent two-phase windings after conversion, and n represents nth phase before conversion, $N_{\alpha i}$ and $N_{\beta i}$ represent the number of turns of the α-phase and β-phase windings in an ith tooth, respectively, and N_{ni} represents the number of turns of nth phase winding of the ith tooth.